AIR QUALITY FULL COMPLIANCEE EVALUATION REPORT
AS 46.14.515

Stationary Source Evaluated:	Kuparuk Central Production Facility # 2 (CPF-2)
Owner/Operator:	ConocoPhillips Alaska, Inc. (CPAI)
Air Quality Permit:	AQ0273TVP01
Location:	70.2892919, -149.8852425
Period Covered By Evaluation:	April 1, 2017 – February 28, 2019
Date of On-Site Visit:	September 17, 2018
Date of Report:	March 1, 2019
Evaluators:	Breanna McGuire, Environmental Program Specialist
Facility Representatives:	Sarah Byam, Catie Coursen, and Brad Broker – Field Environmental Coordinator
Weather Condition At Time Of On-Site Visit:	September 17, 2018 Weather: 32° F, Partly Cloudy, Wind 6 mph (SE)

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I. Evaluation Summary

The Alaska Department of Environmental Conservation (ADEC) conducted an Air Quality Full Compliance Evaluation (FCE) of the ConocoPhillips Alaska, Inc. (CPAI), Kuparuk Central Production Facility # 2 covering the period April 1, 2017 through February 28, 2019. The purpose of the evaluation was to determine if the stationary source complied with terms and conditions of Air Quality Operating Permit No. AQ0273TVP01, the applicable requirements listed in the operating Permit Renewal Application No. AQ0273TVP02A and Alaska Air Quality Control Regulations. This FCE included a comprehensive review of records and files and was conducted with an on-site visit.

Based on the scope of this evaluation, the stationary source was found to be **out of compliance** with Conditions 3(a), 3(b), and 60 of Permit No. AQ0273TVP01. Additionally, the stationary source was found to be **out of compliance** with Federal requirement 40 CFR 63.6625(i).

II. Stationary Source Description

Central Production Facility #2 (CPF-2) is operated by ConocoPhillips Alaska, Inc. Three-phase crude is transferred from the surrounding production pads to CPF-2 where it is separated into crude oil for sale, produced water for reinjection, and natural gas for further processing as fuel and for reinjection. The Standard Industrial Classification (SIC) code for this facility is 1311 - Oil and gas extraction / Crude Petroleum and Natural Gas.

III. Emission Units

The table below identifies the emission units at the stationary source as authorized under the permit.

EU ID	Tag No.	Source Description	Rating	Year[1]
Gas Turbines				
1	C2-101-A	GE Frame 3 (MS3002) Gas Lift Compressor	15,140 hp ISO	5/1993
2	C2-101-B	GE Frame 3 (MS3002) Gas Lift Compressor	15,140 hp ISO	5/1993
3	C2-101-C	GE Frame 3 (MS3002) Gas Lift Compressor	15,140 hp ISO	5/1993
4	G-4202-A	EGT (Ruston) TB5000 Electric Generator (Dual fired)	4,900 hp ISO	10/1981
5	G-4202-B	EGT (Ruston) TB5000 Electric Generator[3]	4,900 hp ISO	10/1981
6	G-4202-C	EGT (Ruston) TB5000 Electric Generator[3]	4,900 hp ISO	10/1981
7	G-4202-D	EGT (Ruston) TB5000 Electric Generator (Dual fired)	4,900 hp ISO	10/1981
8	G-4202-E	EGT (Ruston) TB5000 Electric Generator[3]	4,900 hp ISO	10/1981
9	G-4202-F	EGT (Ruston) TB5000 Electric Generator[3]	4,900 hp ISO	10/1981
10	P-CM02-A	EGT (Ruston) TB5400 Water Injection Pump	5,400 hp ISO	5/1993
11	P-CM02-B	EGT (Ruston) TB5400 Water Injection Pump	5,400 hp ISO	5/1993

EU ID	Tag No.	Source Description	Rating	Year[1]
12	P-CM02-C	EGT (Ruston) TB5400 Water Injection Pump	5,400 hp ISO	5/1993
13	P-CM02-D	EGT (Ruston) TB5400 Water Injection Pump (Dual fired)	5,400 hp ISO	5/1993
Gas-Fired Heaters (Excluding Drill Site Heaters)				
14[4]	H-4201	Broach Emergency Heater (Dual fired)	27.8 MMBtu/hr	12/1981
Liquid Fuel-Fired Equipment				
15	G-4201-A	Waukesha Emergency Generator	1,086 hp	3/1982
16	G-4201-B	Waukesha Emergency Generator	1,086 hp	3/1982
17	P-4205	GM Detroit Allison Emergency Fire Water Pump	235 hp	unknown
18	P-CM04	GM Detroit Allison Emergency Seawater Booster Pump	215 hp	2/1984
19	P-2B02	GM Detroit Allison Freeze Protection Pump (2B)	300 hp	10/1985
20	P-2C02	GM Detroit Allison Freeze Protection Pump (2C)	300 hp	10/1985
21	P-2D02	GM Detroit Allison Freeze Protection Pump (2D)	300 hp	10/1985
22	P-2F02	GM Detroit Allison Freeze Protection Pump (2F)	300 hp	10/1985
23	P-2G02	GM Detroit Allison Freeze Protection Pump (2G)	300 hp	10/1985
24	P-2H02	GM Detroit Allison Freeze Protection Pump (2H)	300 hp	10/1985
25	P-2T02	GM Detroit Allison Freeze Protection Pump (2T)	273 hp	10/1985
26	P-2U02	GM Detroit Allison Freeze Protection Pump (2U)	300 hp	10/1985
27	P-2W02	GM Detroit Allison Freeze Protection Pump (2W)	300 hp	10/1985
28	P-2X02	GM Detroit Allison Freeze Protection Pump (2X)	300 hp	10/1985
29	P-2Z02	GM Detroit Allison Freeze Protection Pump (2Z)	300 hp	10/1985
Flares				
30	H-101A	McGill Emergency Flare	1.1 MMscf/day (Pilot/Purge/Assist) Combined Total for all flares	10/1984
31	H-KM01	Kaldair I-58-VS Emergency Flare		10/1993
32	H-KM02	Kaldair I-87-FS Emergency Flare		10/1993
Other Equipment (Drill Site Heaters)				
33	H-2A01	BS&B Drill Site Heater (2T-Tabasco)	14.9 MMBtu/hr	5/1984
34	H-2B01	CE NATCO Drill Site Heater (2B)	15.4 MMBtu/hr	1983
35	H-2C01	BS&B Drill Site Heater (2C)	14.9 MMBtu/hr	1983
36	H-2D01	CE NATCO Drill Site Heater (2D)	14.5 MMBtu/hr	10/1984

EU ID	Tag No.	Source Description	Rating	Year[1]
37	H-2E01	CE NATCO Drill Site Heater (2E)	3.0 MMBtu/hr	1984
38	H-2F01	BS & B Drill Site Heater (2F)	14.9 MMBtu/hr	1984
39	H-2G01	CE NATCO Drill Site Heater (2G)	14.5 MMBtu/hr	10/1984
40	H-2H01	BS&B Drill Site Heater (2H)	14.9 MMBtu/hr	5/1984
41	H-K04-01	CE NATCO Drill Site Heater (2K)	19.8 MMBtu/hr	1988
42	H-K05-01	CE NATCO Drill Site Heater (2M)	19.8 MMBtu/hr	1988
43	H-3M01	CE NATCO Drill Site Heater (2T)	19.5 MMBtu/hr	7/1985
44	H-2U01	BS&B Drill Site Heater (2U)	14.9 MMBtu/hr	5/1984
45	H-2W01	CE NATCO Drill Site Heater (2W)	23.9 MMBtu/hr	5/1984
46	H-2X01	BS&B Drill Site Heater (2X)	19.4 MMBtu/hr	1983
47	H-2Z01	BS&B Drill Site Heater (2Z)	19.4 MMBtu/hr	1983
Fixed Roof Storage Tanks (>10,000 gallon capacity)				
48	T1-4201	ULSD Fuel	2,000 bbls	1982
49	T-AN175	Ucartritherm (60/40 TEG/ H_2O)	595 bbls	unknown
50	T-AN176	TEG Bulk Storage	595 bbls	unknown
51	T-AN177	Ideal Plus (Lube Oil)	476 bbls	unknown
52	T1-P201A	Divert Tank (Crude Oil)	55,000 bbls	1985
53	T1-P201B	Divert Tank (Crude Oil)	55,000 bbls	1985
54	T-2A01	Methanol	1,200 bbls	1985
55	T-2B01	Arctic (#1) Diesel	1,200 bbls	7/1984
56	T-2C01	Arctic (#1) Diesel	1,200 bbls	7/1984
57	T-2D01	Arctic (#1) Diesel	1,200 bbls	7/1984
58	T-2E01	Methanol	580 bbls	9/1985
59	T-2F01	Arctic (#1) Diesel	1,200 bbls	7/1984
60	T-2G01	Arctic (#1) Diesel	1,200 bbls	7/1984
61	T-2H01	Arctic (#1) Diesel	1,200 bbls	7/1984
62	T-N02-01	Methanol (DS2K)	870 bbls	1988
63	T-N03-01	Methanol (DS2K)	870 bbls	1988
64	T-3M01	Arctic (#1) Diesel (DS2T)	673 bbls	9/1985
65	T-2U01	Arctic (#1) Diesel	1,200 bbls	7/1984
66	T-2V01	Methanol/Diesel	1,200 bbls	After 7/1984
67	T-2W01	Arctic (#1) Diesel	1,200 bbls	7/1984
68	T-2X01	Arctic (#1) Diesel	1,200 bbls	7/1984
69	T-2Z01	Arctic (#1) Diesel	1,200 bbls	7/1984
70[5]	T-2Z07B	Scale Inhibitor (S1-4004)	400 bbls	1985
71	T1-101	Slop Oil	10,000 bbls	1983

1. Date construction commenced (if known) or the startup date of the unit. If a unit has been modified as defined by AS 46.14.990, then the most recent modification date is provided. Relocation of drill site heaters does not constitute a modification.
2. Units identified at "dual fired" are plumbed to run on diesel fuel in an emergency
3. The diesel fuel line has been removed from EU IDs 5, 6, 8, and 9 so they are no longer dual fuel fired.

4. The piping and electrical connections were disconnected from EU ID 14 in September 2016, and the unit is no longer in service (permanently shut down).
5. EU ID 70 was removed from service in June 2014 (permanently shut down).

On January 5, 2019, CPAI provided an updated Emission Inventory.

IV. Compliance Background

The most recent FCE was completed on June 23, 2017. CPAI was found to be **intermittently out of compliance** with Permit No. AQ0273TVP01, Condition 3 (excess opacity from EU ID 30) and Condition 60 (non-compliance with any permit condition triggered non-compliance with Condition 60).

The 2015 FCE was completed on July 31, 2015. CPAI was found to be **intermittently out of compliance** with Permit No. AQ0273TVP01, Condition 3 (excess opacity from EU ID 30), condition 21 (VOCs venting from EU ID 52) and Condition 60 (non-compliance with any permit condition triggered non-compliance with Condition 60).

V. Federal Standards

A. NSPS Subpart A

1. Startup, Shutdown, & Malfunction Requirements

The Permittee shall maintain records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of Source ID(s) 1 through 13, 48, 52 through 57, 59 through 61, 65 through 69, and 71; any malfunctions of associated air pollution control equipment, or any periods during which a continuous monitoring system or monitoring device is inoperative.

2. Good Air Pollution Control Practice

At all times, including periods of startup, shutdown, and malfunction, the Permittee shall, to the extent practicable, maintain and operate Source ID(s) 1 through 13, 48, 52 through 57, 59 through 61, 65 through 69, and 71 including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, opacity observations, and maintenance procedures, and inspections of the affected sources.

3. Concealment of Emissions

The Permittee shall not build, erect, install, or use any article, machine, equipment or process, the use of which conceals an emission which would otherwise constitute a violation of a standard set forth in conditions 18, 21, 22 and 24. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard that is based on the concentration of a pollutant in the gases discharged to the atmosphere.

4. Credible Evidence

For the purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of the standards set forth in conditions 18, 21, 22, and 24, nothing in this permit shall preclude the use, including the exclusive use, of any credible

evidence or information, relevant to whether Source IDs 1 through 13, 52, 53, and 71 would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

Finding: CPAI certified continuous compliance with these requirements in its 2017 Annual Compliance Certifications (ACC). No instances of concealment were discovered during the September 17, 2018 onsite inspection.

In Compliance

B. NSPS Subpart Ka

1. Requirements

The Permittee shall not store in Source ID(s) 48, 55 through 57, 59 through 61, 65 and 67 through 69, a petroleum liquid with a true vapor pressure greater than 1.0 psi.

2. VOC Standard

The Permittee shall equip Source ID 71 with a vapor recovery system which collects all VOC vapors and gases discharged from the storage vessel, and a vapor return or disposal system which is designed to process such VOC vapors and gases so as to reduce their emissions to the atmosphere by at least 95 percent by weight.

Finding: CPAI reported continuous compliance with the true vapor pressure requirement in its 2017 ACC EU IDs 48, 55 through 57, 59 through 61, 65, and 67 through 69 store Arctic (#1) Diesel and ULSD Fuel. CPAI reported continuous compliance with the VOC standard in its 2017 ACC.

In Compliance

C. NSPS Subpart Kb

1. Requirements (Recordkeeping Only)

For Source ID(s) 49 through 51, 58, 62 through 64, and 70, the Permittee shall keep readily accessible records for the life of the tank showing the dimensions and an analysis showing the capacity of the tank.

For Source ID(s) 54 and 66 the Permittee shall maintain a record of the volatile organic liquid (VOL) stored, the period of storage, and the maximum true vapor pressure (TVP) of that VOL, based on the maximum storage temperature recorded during the respective storage period. Keep readily accessible records for the life of the tank showing the dimensions and an analysis showing the capacity of the storage vessel. Notify the Administrator within 30 days when the maximum TVP of the liquid exceeds 5.2 kPa (0.75 psi).

2. VOC Standard

The Permittee shall equip Source ID(s) 52 and 53 with a closed vent system and control device. The closed vent system shall be designed to collect all VOC vapors and gases discharged from each storage vessel and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as determined by Method 21. The control device shall be designed and operated to reduce inlet VOC emissions by 95 percent or greater. Operate

the closed vent system and monitor closed vent system parameters in accordance with the operating plan. Maintain a copy of an operating plan on file. Keep a record of the measured values of the parameters monitored in accordance with an operating plan. Keep readily accessible records for the life of the tank showing the dimensions and an analysis showing the capacity of the storage vessel.

Findings: CPAI certified continuous compliance in the 2017 ACC. In addition EU IDs 54 and 66 are Methanol Storage Tanks. In its January 5, 2019 response to the Department's information request, CPAI provided the volume of the VOL stored and the maximum TVP based on the maximum storage temperature for each day of 2017 and 2018. The reported TVP values did not exceed 0.75 psi. The highest TVP was 0.387 psi. On May 11, 2017, CPAI submitted a copy of the Operating and Maintenance Plan Revision 3. For EU IDs 52 and 53 the plan ensures compliance with Conditions 21.1-21.4 for operating, monitoring and recordkeeping of the closed vent system affected storage vessels.

In Compliance

D. NSPS Subpart GG

1. NOx Standard

The Permittee shall not allow the corrected exhaust concentration of NOx from: Source IDs 1 through 13 to exceed 161 ppmv and Source IDs 10 through 13 to exceed 162 ppmv. The Permittee shall comply with the periodic testing, recordkeeping and reporting requirements listed under Condition 23 of Permit No. AQ0273TVP01.

Finding: No NOx source testing was conducted or required during the evaluation period. The most recent NOx source tests were conducted on May 11-12, 2012 on EU IDs 2 and 3. All results were below the applicable thresholds with a maximum value measured being 129.0 ppmv for EU ID 2 and 129.9 ppmv for EU ID 3. CPAI reported continuous compliance with all NSPS Subpart GG NOx requirements in its 2017 ACC.

In Compliance

2. Sulfur Standard

The Permittee shall not allow the sulfur content of the fuel burned in Source IDs 1 through 13 to exceed 0.8 percent by weight. Monitor compliance monthly with the aforementioned fuel sulfur content standard as follows: For gaseous fuels, determine the sulfur content of the fuel using ASTM D 4810-88 (1999), D 4913-89, or Gas Producers Association 2377-86, or an alternative analytical method approved by EPA. For liquid fuels, determine the sulfur content using ASTM D 2880-71, or an EPA approved alternative method. The Permittee shall annually report to the EPA results of all sulfur monitoring required by this condition.

Finding: The Department reviewed the 2017 Annual NSPS Subpart GG report for CPF-2. All reported sulfur content values were below the 0.8% threshold. During the evaluation period, CPAI also reported the monthly sulfur content values in its FORs. The highest reported sulfur content was 100 ppm. ASTM D4810-06 was used to analyze the fuel gas, while ASTM D2622-10 was used to analyze the liquid fuel. ASTM D 2622-98 (1998) was adopted under 18 AAC 50.035(c)(4).

In Compliance

E. NESHAP Subpart A

1. Applicability Determinations

The Permittee shall determine rule applicability and designation of affected sources under National Emission Standards for Hazardous Air Pollutants (NESHAPs) for Source Categories (40 CFR 63) in accordance with the procedures described in 40 CFR 63.1(b). If a source becomes affected by an applicable subpart of 40 CFR 63, Permittee shall achieve compliance with applicable provisions as expeditiously as practical after publication of final rule, but not later than three years after promulgation of a final rule. A record of any applicability determination shall be retained on site for a period of 5 years after the determination, or until a source changes its operations to become an affected source, whichever comes first. The record of the applicability determination shall include an analysis (or other information) that demonstrates why the Permittee believes the source is unaffected. The analysis shall be sufficiently detailed to allow the Administrator to make a finding about the source's applicability status with regard to the relevant standard or other requirement.

Finding: CPAI reported continuous compliance with the requirements of Subpart A in its 2017 ACC. In its 2013 ACC, CPAI reported that the area source provisions of 40 CFR 63 Subpart ZZZZ apply to EU IDs 15 through 29. The compliance date for Subpart ZZZZ was May 3, 2013. See NESHAP Subpart ZZZZ, below, for more information.

In Compliance

F. NESHAP Subpart ZZZZ

NESHAP for Stationary Reciprocating Internal Combustion Engines. At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source. In addition to the NESHAP Subpart ZZZZ operating requirements, CPAI must comply with the following for EU IDs 15-29: Change the oil and filter every 500 hours of operation or annually, whichever comes first. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of §63.6640. Except as provided in paragraphs (f)(4)(i) and (ii) of §63.6640, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for

a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

Finding: The Department received 2017 and 2018 maintenance and inspection records for EU IDs 15-29 on January 5, 2019 as part of CPAI's response to the FCE information request. The records indicate that ConocoPhillips is in compliance with the maintenance requirements of Subpart ZZZZ with routine oil sampling, inspections, oil and filter changes.

CPAI stated that EU IDs 17-29 were out of compliance with 40 CFR 63 Subpart ZZZZ from 2013 through 2017 due to the oil analysis lacking the Total Base Number. See ***Section X(C)*** for more information.

The following hours of operation were provided in CPAI's 4Q17 and 4Q18 FORs:

2017 Operating Hours		
EU ID	Non-Emergency Hours	Emergency Hours
15	11.17	0.0
16	11.17	0.0
17	16.73	0.0
18	11.66	0.0
19	1.5	0.00
20	0.25	0.00
21	0.00	0.50
22	4.50	1.50
23	0.30	1.00
24	2.20	0.00
25	0.00	0.00
26	0.00	0.00
27	2.50	4.50
28	0.50	0.00
29	0.00	0.00

2018 Operating Hours		
EU ID	Non-Emergency Hours	Emergency Hours
15	16.25	0.00
16	15.92	0.00
17	23.85	0.00
18	14.58	0.00
19	0.00	0.50
20	0.75	0.00
21	0.75	0.00
22	0.50	1.00
23	1.50	0.00
24	1.00	0.00
25	0.50	0.00
26	0.00	0.50
27	1.25	0.00
28	0.75	0.00
29	0.00	0.00

According to the operating hour values reported in the 4Q17 and 4Q18 FORs, EU IDs 15-29 did not exceed the NESHAP Subpart ZZZZ operating hour limits during the evaluation period.

Out of Compliance with 40 CFR 63.6640(e) and 40 CFR 63.6650(f)

G. Halon Emissions Reduction.

The Permittee shall comply with the prohibitions (Conditions 26.1-26.5 of Permit No. AQ0273TVP01) set out in 40 CFR 82.270(b)-(f). Monitoring shall consist of an annual certification that the Permittee complies with these prohibitions.

Finding: CPAI reported continuous compliance with the Halon prohibitions in its 2017 ACC.

In Compliance

H. Significant New Alternatives Policy Programs.

The Permittee shall comply with the prohibitions (Conditions 27.1-27.3 of Permit No. AQ0273TVP01) set out in 40 CFR 82.174(b)-(d). Monitoring shall consist of an annual certification that the Permittee complies with these prohibitions.

Finding: CPAI reported continuous compliance with the Significant New Alternatives Policy Programs prohibitions in its 2017 ACC.

In Compliance

I. NSPS Subpart OOOOa—Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification, or Reconstruction Commenced after September 18, 2015

Activities covered under this rule that became effective August 2, 2016 include but are not limited to hydraulic fracturing within oil and gas production fields. Commonly known as "fracking", this process is a well stimulation technique in which rock is fractured by a pressurized liquid (water mixture).

This subpart establishes emission standards and compliance schedules for the control of the pollutant greenhouse gases (GHG). The greenhouse gas standard in this subpart is in the form of a limitation on emissions of methane from affected facilities in the crude oil and natural gas source category that commence construction, modification, or reconstruction after September 18, 2015. This subpart also establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO2) emissions from affected facilities in the crude oil and natural gas source category that commence construction, modification or reconstruction after September 18, 2015. The effective date of the rule is August 2, 2016.

Per 40 CFR 60.5420a (b) the initial report is due, no later than 90 days after the end of the initial compliance period as determined to 60.5410a. The initial compliance period began on August 2, 2016 and ends August 1, 2017; therefore the first annual report would be due by October 30, 2017.

Per 40 CFR 60.5420a(b); CPAI may arrange with the administrator a common schedule on which reports may be submitted so long as the schedule does not extend the reporting period.

CPAI reported to have triggered applicable Subpart OOOOa requirements for well affected facilities (green completions after fracking) and for fugitive emissions at well sites. Due to the "wagon wheel" aggregation, for CPF2, 2 fracking events occurred before the effective date of the rule and after the retroactive applicability date: fracking on March 30, 2016 and January 20, 2016 at DS-2M and DS-2T respectively. Several well sites for fugitive emissions have been triggered, but compliance is not required yet.

Finding: CPAI elected to submit the annual OOOOa to the EPA on June 29, 2017 (and by June 29th of all subsequent years). The Department received the report on July 20, 2018 with the 3Q18 Facility Operating Report, covering the period of September 18, 2015 through March 31, 2017.

June 29, 2017 covers a reporting period of less than one year (reporting sooner than October 30, 2017), and therefore satisfies the requirement for an alternate reporting deadline.

CPAI submitted the April 1, 2017 through March 31, 2018 report on July 20, 2018. Both reports during the evaluation period were submitted to the EPA by the deadline.

In Compliance

CPF-2 MAY BE SUBJECT TO ADDITIONAL FEDERAL STANDARDS NOT LISTED IN PERMIT NO. AQ0273TVP01.

VI. State Standards

A. Visible Emissions Standard

The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source IDs 1 through 47 listed in Table 1 to reduce visibility through the exhaust effluent by either: more than 20% for more than three minutes in any one hour, or more than 20% averaged over any six consecutive minutes.

Finding: In its 2017 ACC, CPAI reported continuous compliance with all triggered VE requirements.

CPAI reported that EU IDs 1-3, 4-6, 8, 9, 10-12, 13 and 33-47 burned only gas as fuel, EU ID 14 did not operate, EU IDs 15 and 16 operated 140 hours or less and EU IDs 17-29 operated 400 hours or less. Additionally, EU ID 7 did not exceed the 400 hour operating limit on liquid fuel during 2015. Therefore, VE monitoring was not required for these units in 2017 or 2018.

In Compliance

B. Particulate Matter (PM) Standard

The Permittee shall not cause or allow particulate matter emitted from Source IDs 1 through 47 listed in Table 1 of Permit No. AQ0273TVP01 to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.

Finding: In its 2017 ACC, CPAI reported continuous compliance with all triggered PM standards. PM source testing was not required during the evaluation period.

In Compliance

C. Sulfur Compound Emissions Standard

In accordance with 18 AAC 50.055(c), the Permittee shall not cause or allow sulfur compound emissions, expressed as SO_2, from Source IDs 1 through 47 to exceed 500 ppm averaged over three hours.

Finding: During the evaluation period, CPAI submitted a summary of the sulfur content for LEPD (diesel fuel from a North Slope topping plant), which was measured monthly. Sulfur

content did not exceed 0.75 wt%. In addition to the LEPD sulfur content, CPAI also reported the results of sulfur analyses for ULSD.

With regard to fuel gas, CPAI reported the monthly H_2S content for CPF-2 Fuel Gas in each operating report submitted during the evaluation period. ASTM D4810-06 was used to analyze the fuel gas. All reported sulfur content values were below the 0.8% by weight threshold listed under Condition 24 of Permit No. AQ0273TVP01.

In Compliance

VII. Source Specific Requirements

A. BACT Emission Limits

The Permittee shall limit actual emissions from the Turbines (Source IDs 1 through 13) as indicated in Table 2 of Permit No. AQ0273TVP01.

The Permittee shall limit actual emissions from the Broach and Drill Site Heaters (Source IDs 14 and 33 through 47) as indicated in Table 3 of Permit No. AQ0273TVP01.

The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source IDs 1 through 13 to reduce visibility through the exhaust effluent by greater than 10 percent averaged over any six consecutive minutes. Monitoring shall consist of an annual certification that Source IDs 1 through 13 burned only gas.

Finding: In each FOR submitted during the evaluation period, CPAI reported the monthly and consecutive 12-month emissions from the turbines and Broach and Drill Site Heaters. Reported NOx, SO_2, CO, PM and VOC emissions were below the BACT limits listed in Tables 2 and 3 of Permit No. AQ0273TVP01. The highest 12-monthly rolling totals for EU 1-13 and EU 14-33 were as follows:

EU 1-13	Permit Limit (Consecutive 12-month total)	Highest 12-Month Rolling Reading in Tons for Evaluation Period
NO_x	2,602 tons	1,640.5 (Jul. 2017)
CO	764 tons	304.8 (Jul. 2017)
VOC	9.5 tons	7.8 (Jul. – Nov. 2017)
SO_2	137 tons	49.3 (Dec. 2017)
PM	63 tons	51.0 (Jul. 2017)

EU 14-33	Permit Limit (Consecutive 12-month total)	Highest 12-Month Rolling Reading in Tons for Evaluation Period
NO_x	131 tons	113.5 (Jul. – Dec. 2017)

CO	46 tons	20.4 (Jan. – Dec. 2017)
SO_2	36 tons	13.9 (Dec. 2017)
PM	15 tons	2.8 (Jan. – Dec. 2017)

In its 2017 ACC, CPAI reported that EU IDs 1-13 burned only gas. CPAI reported that no visible emissions were observed during liquid fuel operation.

In Compliance

B. Fuel Consumption Monitoring for Source IDs 1 through 47

The Permittee shall maintain and operate fuel gas meters or provide other means of estimating fuel consumption to determine the total volume of fuel gas consumed by the Turbines (Sources ID(s) 1 through 13) and the Broach Emergency Heater (Source ID 14). For other fuel-burning equipment (Source ID(s) 15 through 47), the fuel consumption may be estimated.

Finding: In each FOR submitted during the evaluation period, CPAI reported the monthly fuel consumption for each source group and total fuel consumption for the facility.

In Compliance

C. Hours of Operation Monitoring for Fuel-Fired Sources

Report using the facility operating report under condition 58, the monthly hours of operation for each of Source ID(s) 1 through 29 and 33 through 47.

Finding: In each FOR submitted during the evaluation period, CPAI reported the monthly operating hours for each of EU IDs 1-29 and 33-47.

In Compliance

D. Fuel Gas Sulfur Content Limit

The Permittee shall not use fuel gas with a hydrogen sulfide (H_2S) concentration that exceeds 200 ppm at standard conditions, annual average.

Finding: In each FOR submitted during the evaluation period, CPAI reported the monthly rolling 12-month average fuel gas H_2S concentration. All reported values were below the 200 ppm limit with the highest reading of 85.0 during December 2017.

In Compliance

E. Operating Hours for Emergency Equipment

The Permittee shall operate the emergency equipment (Source IDs 15-29) for no more than 200 hours each per consecutive twelve-month period. This limit does not include emergency operations.

Finding: In each FOR submitted during the evaluation period, CPAI reported the monthly and consecutive 12-month operating hours for EU IDs 15-29 for both emergency and non-emergency

operations. Reported 12-month non-emergency operating hours did not exceed the 200 hour limit with the highest reported non-emergency hours of 23.85 hours for EU ID 17 in December 2018.

In Compliance

During the evaluation period, no compliance issues were discovered with regard to the insignificant source requirements or general requirements listed in Permit No. AQ0273TVP01.

VIII. Public Complaints

During the evaluation period, CPAI reported that no complaints were received for CPF-2. Additionally, the Department has not received any public complaints during the period of this review.

IX. Records Research

On December 4, 2018, ADEC requested the following information from the stationary source in accordance with 18 AAC 50.200 and AS 46.14.020(b) in order to complete this compliance evaluation.

1. Review and make corrections as necessary to the attached Emissions Unit Inventory form.

   Response: Please see Attachment 1 for the Emissions Unit Inventory.

2. Review, and if needed, correct the attached Contact Information form.

   Response: Please see Attachment 2 for a current list of role holders and estimated end dates for those no longer in the referenced position. There were no changes to the company information or designated agent.

3. Provide a description of any upgrades, modifications, or improvements conducted at CPF-2 between April 1, 2017 and December 31, 2018 that had any effect on air emissions.

   Response: There were no upgrades, modifications, or improvements conducted between 1 April 2017 and 4 December 2018 at CPF-2 that had a significant effect on air emissions.

4. Provide the records required under Conditions 20.1 of Permit No. AQ0273TVP01 Rev. 1 for the 2017 and 2018 calendar year.

   Response: Attachment 3 provides the records for EU ID 54 and 66 of the volatile organic liquid (VOL) stored, the period of storage, and the TVP of that VOL calculated based on the monthly average ambient temperatures. EU IDs 54 and 66 were operated at ambient temperatures during the information period requested. A list of planned maintenance work orders for changing the storage tank contents from pure methanol to a 60/40 methanol-water mixture are also listed in Attachment 3. In 2017 and 2018, as an alternative to changing the storage tank contents, the tanks were emptied at the end of April and refilled at the beginning of October.

   The monthly average temperatures for January through December 2017 and January through October 2018, as recorded in the Ugnu-Kuparuk Airport, International Civil Aviation Organization ID

PAKU, are included in Attachment 4. At the time of this response, validated weather summary data are limited to the period up through 31 October 2018. The monthly average temperatures for November and December 2018 were taken from data provided by the Ugnu-Kuparuk Airport.

The TVP of the VOL is calculated based on storage of pure methanol for the months of January - April and October - December. The TVP of the VOL is calculated based on the storage of diesel fuel for July - September 2018 for EU ID 66. A 60/40 methanol water mixture was not stored in the tanks during the compliance period. Methanol TVP was calculated using Goodwin (1987), and diesel TVP was calculated using EPA AP- 42 (2006). Details on the calculation methodology are provided in Attachment 5.

5. With regard to EU/Os 15-29, provide 2017 and 2018 NESHAP Subpart ZZZZ maintenance records. Please indicate the operating hours for each unit at the time of service and/or inspection.

Response: Attachment 6 is the list of preventative maintenance items with associated hours of operation for EU ID 15-29.

X. Reports Reviewed

A. Operating Reports

Condition 58 of Permit No. AQ0273TVP01 requires CPAI to submit an original and two copies of a quarterly operating report by April 30 for the period January 1 to March 31, by July 30 for the period April 1 to June 30, by October 30 for the period July 1 to September 30, and by February 15 for the period October 1 to December 31. ADEC has received and reviewed the following operating reports for the period of this review:

1. April 1, 2017 – June 30, 2017. Submitted July 28, 2017. **In Compliance**
2. July 1, 2017 – September 30, 2017. Submitted October 27, 2017. **In Compliance**
3. October 1, 2017 – December 31, 2017. Submitted February 13, 2018. **In Compliance**
4. January 1, 2018 – March 31, 2018. Submitted April 30, 2018. **In Compliance**
5. April 1, 2018 – June 30, 2018. Submitted July 20, 2018. **In Compliance**
6. July 1, 2018 – September 30, 2018. Submitted October 29, 2018. **In Compliance**
7. October 1, 2018 – December 31, 2018. Submitted February 11, 2019. **In Compliance**

B. Annual Compliance Certifications

Condition 59 of Permit No. AQ0273TVP01 requires CPAI to submit an annual compliance certification to ADEC and EPA by March 31. ADEC has received and reviewed the following annual compliance certification reports for the period of this review:

1. January 1 – December 31, 2017. Submitted March 29, 2018. **In Compliance**

C. Excess Emissions and Permit Deviations

Condition 56 of Permit No. AQ0273TVP01 requires CPAI to report all excess emissions or operations that exceed or deviate from the requirements of the permit.

EXCESS EMISSIONS

Permit No. AQ0273TVP01

1. **Date and Time of Event:** June 29, 2018 10:01 am – 1:11 pm
   Report Submitted: June 29, 2018
   EU ID: 32
   Applicable Permit Condition: 3(a), 3(b), and 60
   Unavoidable Assertion: Yes
   Affirmative Defense: Yes
   Event Description: On 29 June 2018 at 06:52, Kuparuk CPF2 began a plant blowdown as part of its test of the facility emergency shutdown (ESD) system. During the flaring, COPA determined that EU ID 32 exceeded the applicable opacity limits between 10:01 and 13:11 on 29 June 2018.
   Corrective Action: COPA reduced the number of wells operating prior to the ESD/blowdown test and managed operation of the flare units to reduce the duration of flaring and black smoke. CPF-2 completed the required ESD blowdown test. Similar reduction in well operations will take place next time a required ESD/blowdown test takes place.

PERMIT DEVIATIONS

Permit No. AQ0273TVP01

1. **Date and Time of Event:** 2013 - 2017
   Report Submitted: October 29, 2018
   EU IDs 17-29
   Applicable Federal Condition: 40 CFR 63 Subpart ZZZZ
   Event Description: CPAI stated that they were out of compliance with NESHAP 40 CFR 63 Subpart ZZZZ involving EU IDs 17 – 29. During the routine audit, it was discovered that the analysis for Total Base Number was not conducted during the oil sampling for the listed emission units.

Source ID	Source Name	Years
17	P-4205B	2014, 2016-2017
18	P-CM04	2014-2017
19	P-2B02	2013-2017
20	P-2C02	2013-2015, 2017
21	P-2D02	2013-2015, 2017
22	P-2F02	2013-2015, 2017
23	P-2G02	2013-2015, 2017
24	P-2H02	2013-2015, 2017
25	P-3M01	2013-2015, 2017
26	P-2U02	2013-2015, 2017
27	P-2W02	2013-2015, 2017
28	P-2X02	2013-2015, 2017
29	P-2Z02	2013-2015, 2017

Corrective Action: CPAI stated that the Total Base Number Analysis was added the analytes completed by the oil sampling provider starting 2018.
Notes: The Department will address these violations in transmittal letter. The Department advices CPAI to ensure all of their sources have this request added the analytes completed by the oil sampling provider.

D. Source Tests

No Source Testing occurred at CPF-2 during the evaluation period.

E. Federal Reports

1. NSPS Subpart Kb OM Plan. Submitted May 11, 2017. This Operating and Maintenance Plan concerns conditions 21.1-21.4 of the current permit. The plan is to ensure VOC compliance. Currently the process tanks are not subject to Subpart Kb, but the current TV still have the Conditions for Kb until the revision of the permit is effective. The permit also requires the Permittee to submit a copy to the Dept for NSPS reports submitted to the EPA. Which this one is addressed to the EPA. **In Compliance**
2. NSPS Subpart GG Annual Report. January 1 – December 31, 2017. Submitted January 15, 2018. **In Compliance**
3. NSPS Subpart OOOOa Annual Report. March 31, 2017 – March 31, 2018. Submitted July 20, 2018. **In Compliance**
4. NESHAP Subpart CCCCCC Initial Notification. Submitted December 6, 2018.
5. NSPS Subpart GG Annual Report. January 1 – December 31, 2018. Submitted January 25, 2019. **In Compliance**

F. Other Reports:

1. **Change of Responsible Party Notification.** Submitted August 30, 2018. CPAI requested Erik Keskula be added to all requested sources.
2. **Change of Responsible Party Notification.** Submitted September 24, 2018. CPAI sent a duplicate request to add Erik Keskula as a responsible official.
3. **Change of Responsible Party Notification.** Submitted December 11, 2018. CPAI requested Scott Fahrney be added as a responsible official.

XI. On-Site Visit

Inspector: Breanna McGuire
September 17, 2018
Weather: 32° F, Partly Cloudy, Wind 6 mph (SE)

I met with Sarah Byam, Catie Coursen, and Brad Broker at their main office at Kuparuk Central Production Facility #1 (CPF-1) before departing to CPF-2.

We signed in with Mark Tuttle, Manager, before beginning our tour around the facility. All of the operating units appeared to be in good working order, no strange odors or leaks were observed during the inspection. During the inspection no visible emission (excluding water vapor) were observed.

Emission Units Observed:

- EU IDs 1-3: GE Frame 3 (MS3002) Gas Lift Compressors. All three of the units were operating. The operator indicated that normally, all three units are operating. Their routine maintenance consists of annual borescopes. Each unit is equipped with Waste Heat Recovery (WHR) stacks. The heat may be used to heat the modules. Ms. Byam explained that the stacks had probes near the ceiling that monitored emissions.

- EU ID 17: GM Detroit Allison Emergency Firewater Pump. The unit was not operating. In response to the FCE IR Letter, ConocoPhillips reported that the oil filter was last changed on December 17, 2018 at 514 hours. At the time of the inspection, EU ID 17 had operated for 504.3 hours.

- EU ID 18: GM Detroit Allison Emergency Seawater Booster Pump. The unit was not operating. In response to the FCE IR Letter, ConocoPhillips reported that the oil filter was last changed on September 29, 2018 at 783.17 hours. Per the last FCE, the unit acquires water from the lake, which may be used for fires. The original intent of the unit was to provide fire water to the fire water header in case of power loss. However, it has other functions.

- EU ID 19: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 509.94 hours.

- EU ID 20: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 358.98 hours.

- EU ID 21: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 442.34 hours.

- EU ID 22: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 407.62 hours.

- EU ID 23: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 154.79 hours.

- EU ID 24: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 383.59 hours.

- EU ID 25: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 85 hours.

- EU ID 26: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 337.09 hours.

- EU ID 27: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 131.02 hours.

- EU ID 28: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 488.47 hours.

- EU ID 29: In response to the 2019 FCE IR Letter, CPAI stated the last oil change occurred on June 17, 2018 at 682.8 hours.

- EU ID 14: Broach Emergency Heater (Dual-Fired). If necessary, the unit could heat buildings and modules. However, it has not operated recently and it was disconnected from its fuel lines in 2015. Therefore, it is not functional at this point. However, it could be functional if reconnected.

- EU IDs 10-13: EGT Water Injection Pumps. EU ID 13 is dual-fired. Per the last FCE, EU ID 13 still has the ability to fire liquid fuel, but it rarely does. All of the units were operating. The units power the reinjection pumps.

- EU IDs 15-16: Waukesha Emergency Generators. Neither of the units were operating. The last oil inspection before the September 17, 2018 was on December 10, 2017 (EU ID 15 at 583 hours and EU ID 16 at 596 hours). Most recently EU IDs 15 and 16 had their oil inspected on December 23, 2018. EU ID 15 was at 598 hours and EU ID 16 was at 610 hours.

- EU IDs 4-9: EGT (Ruston) TB5000 Electric Generator (Dual Fired). All the units were operating. Per the last FCE, these units have annual borescopes. Four of the six units are equipped with WHR stacks. Similar to EU IDs 1-3, the heat may be used to heat the modules.

- EU ID 30-32: McGill Emergency Flare and two Kaldair Emergency Flares. EU ID 30 was operating, no black smoke was observed during the inspection. EU IDs 31 and 32 were under maintenance at the time of the inspection.

- EU IDs 54 and 66: Tanks can contain multiple liquids. Both units were empty during the onsite inspection.

XII. Compliance Issues

According to Permit No. AQ0273TVP01 and Alaska Air Quality Control Regulations, CPAI's CPF-2 appeared **out of compliance** with the following permit Conditions. Additionally, CPAI appeared to be **out of compliance** with the following Federal requirements during the period of this review:

Permit No. AQ0273TVP01	
Condition 3(a)	**The permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source ID(s) 1 through 47 listed in Table 1 to reduce visibility through the exhaust effluent by either** **(a) More than 20% for more than three minutes in any one hour, or**
Finding(s)	On June 30, 2018 CPAI submitted a permit deviation stating on June 29, 2018 at 06:52, Kuparuk CPF2 began a plant blowdown as part of its test of the facility emergency shutdown (ESD) system. During the

	flaring, CPAI determined that EU ID 32 exceeded the applicable opacity limits between 10:01 and 13:11 on June 29, 2018. This exceedance in opacity limit triggered permit conditions 3(a) and 3(b). The corrective actions taken include: CPAI reduced the number of wells operating prior to the ESD/blowdown test and managed operation of the flare units to reduce the duration of flaring and black smoke. CPF-2 completed the required ESD blowdown test. Similar reduction in well operations will take place next time a required ESD/blowdown test takes place. The event was caused by a required shut down and CPAI took the appropriate measures prior to shut down. Continue to take the appropriate measures prior to required shut downs for required maintenance and testing. No further actions required if compliance is maintained.
Condition 3(b)	**The permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source ID(s) 1 through 47 listed in Table 1 to reduce visibility through the exhaust effluent by either** **(b) More than 20% averaged over any six consecutive minutes**
Finding(s)	See Condition 3(a) for more information.
Condition 60	**The permittee must comply with each permit term and condition. Noncompliance with a permit term or condition constitutes a violation of AS 46.14, 18 AAC 50 and, except for those terms or conditions designated in the permit as not federally-enforceable the Clean Air Act, and is grounds for** **60.1 an enforcement action;** **60.2 permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280; or** **60.3 denial of an operating-permit renewal application.**
Finding(s)	The Permittee was in violation of Conditions 3(a) and 3(b), see above permit conditions for more information.
40 CFR 63.6625(i)	**(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new;**

	viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.
Finding(s)	On October 29, 2018, CPAI reported in its 3Q18 FOR deviations from NESHAP 40 CFR 63 Subpart ZZZZ. CPAI reported that during the routine audit, it was discovered that the analysis for Total Base Number was not conducted during the required oil sampling for EU IDs 17-29. CPAI stated the emergency engines lacked the TBN from 2013 through 2017 respectively. CPAI took corrective actions to prevent this type of violation in the future See **Section X(C)** above for details on the reported violation.

XIII. Conclusion

As a result of ADEC's Air Quality Full Compliance Evaluation conducted with an on-site visit, CPAI's CPF-2 was found to be operating **out of compliance** with the Conditions of Permit No. AQ0273TVP01 and **out of compliance** with 40 CFR 63.6625(i).